DOCUMENT RESUME

ED 257 033 CS 007 829

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TITLE Pre-Questions for Prose Learning with Reading-Anxious College Students.
PUB DATE 84
NOTE 7p.; "Forum for Reading" is the journal of the College Reading Improvement Special Interest Group of the International Reading Association.
PUB TYPE Reports - Research/Technical (143) -- Journal Articles (080)
JOURNAL CIT Forum for Reading; v15 n2 p71-75 Spr-Sum 1984

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Advance Organizers; *Reading Ability; *Reading Comprehension; *Reading Difficulties; Reading Instruction; Reading Materials; Reading Material Selection; *Reading Research; Reading Skills
IDENTIFIERS *Reading Anxiety

ABSTRACT

A study focusing on anxiety and its interaction with reading explored the undetermined potential of prequestions for treating high reading-related anxiety. The research sample was comprised of 151 members of the freshman nursing classes at a large southeastern university. Evaluation materials included commercial reading tests as well as questions developed by the researchers. After all students were tested initially, 49 found to have high reading anxiety and low comprehension skills met in the next session for subsequent tests. Results show that serious evidence can be promulgated for considering poor ability as a contributing factor to high reading anxiety and not the inverse. High anxiety related to poor reading ability had no effect on reading comprehension tasks, even when adjunct prequestions were provided and anxiety was relatively high. It seems likely that a history of reading failure acts to inflate anxiety related to reading, so the direction may be from poor reading ability to high anxiety. Poor readers with high anxiety need more and better reading skill improvement. Teachers eager to use prequestions should consider alternative reading aids. (DF)

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Pre-questions for Prose Learning with Reading-anxious College Students

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Pre-questions for prose learning with reading-anxious college students

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For years researchers have been documenting the negative interaction between anxiety and reading. In this paper, "anxiety" will be defined as the measured target associated with some observable or otherwise operationalized symptom of anxiety. In other words, the construct of anxiety will not be separated from the particular instrument which was used to measure the construct. A negative relationship between reading and anxiety has been found for beginning readers (Berrent, 1975), and seems especially prevelant among college readers (Bennett & Wark, 1980, Note 1).

In spite of these findings, teachers and counselors of academically handicapped college students give virtually no attention to anxiety and its possible contribution to reading deficiencies. This, in part, may be explained by the difficulty practitioners might have with translating the research results into effective diagnoses and treatments. Or perhaps the research is misleading.

To be measured, anxiety must be associated with a referent or target (e.g., manifest, state, trait, math). A target defines the specific construct of interest about which information on anxiety is desired. In every study examined, anxiety scales were used which did not have reading as their specific target.

The problem of using inappropiate tests for the measurement of particular forms of anxiety was the concern of Alpert and Haber (1960). They desired to measure anxiety in academic settings but were dissatisfied with the available instruments because none had academic anxiety as its target. They argued that anxiety scales which match the target of interest would have more predictive power than anxiety scales with unmatched targets. They supported this assertion by verifying the ability of their instrument, the Academic/Test Anxiety scale, to predict test performance over anxiety scales with general targets.

It may be argued that if practitioners want to investigate the relationship of reading and anxiety for the purpose of screening potential reading failures, then their tools for measuring anxiety should be more precisely defined.

Concomitant with diagnosis are treatment considerations. What instructional strategies should be used for students who have high negatively correlating reading and anxiety scores? In the literature reviewed, very few studies attempted to do more than establish the relationship between reading and anxiety. No serious support for a cause/effect relationship could be found. Once a significant association between the variables was established, researchers concluded, more often than not, that high anxiety was the cause of poor reading performance. Treatments, when evident, involved a great deal of time and energy on the part of both the trainers and the subjects. What is more, the treatments were contingent on the presence of the trainer or counselor.

An efficient treatment which could be easily learned and employed by an anxious reader outside the experimental context seemed worth exploring. A promising strategy was the use of pre-reading questions (prequestions) which have been found to help students improve their atten-

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tion to the reading task and retention of what has been read (Peeck, 1970, Note 1). Pre-questions placed before relevant sections of text could provide anxious readers the necessary cues for engaging in task-relevant behaviors. Sarason (1968) indicated that highly anxious students need to find cues early in the learning task; otherwise they are likely to engage in task-irrelevant behaviors that eventually lead to unsuccessful performance.

Purpose

This study was an attempt to add to the literature in the area of anxiety and its interaction with reading. Specifically, it explored the undetermined potential of pre-questions for treating high reading-related anxiety.

It was hypothesized that (1) an anxiety scale with reading as its target will be a better predictor of reading comprehension than anxiety scales with unmatched targets, (2) high reading anxious subjects who are provided pre-questions will experience a decrease in anxiety, and (3) these subjects will outperform a comparable group of high reading-anxious subjects who do not receive pre-questions on a reading comprehension task.

METHOD

Subjects

To test the first hypothesis, 151 members of the freshmen nursing classes at a large Southeastern university comprised the research sample. Forty-nine students from this group, found to have high reading-anxiety (subjects who selected the highest anxiety option to eight or more statements on the Reading Anxiety Scale) and poor reading comprehension (subjects who scored below the 50th percentile on the Paragraph Comprehension subtest of the McGraw-Hill Reading Test) were selected for testing the remaining two hypotheses. These cut-offs were set by the author based partly on consultation with an expert in educational measurement and as a result of many hours of diagnostic experience using the instruments with college students.

Materials

The Reading Anxiety Scale (RAS). The RAS was constructed according to affective test design criteria. The target of the scale is school-related reading. The instrument was field tested with a group of first year nursing students (N = 48) and was found to be technically sound. An Alpha coefficient of internal consistency of .91 was obtained on the field test. Results of both the principal axis method and rotated factor analyses suggested a unidimensional scale measuring the construct of reading anxiety. The RAS is objectively scored with totals ranging from 15 to 45. The higher the score, the higher the presumed level of reading anxiety (Note 2).

The State/Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch & Lushene, 1970). the sub-scales of this instrument were considered representative of the specific (STAI-S) and general (STAI-T) anxiety measures utilized in past reading/anxiety research.

The McGraw-Hill Reading Test (Raygor, 1970). The Paragraph comprehension subtest provided one reading comprehension measure employed in testing the first hypothesis.

The Logic In Language Test (LIL). The test includes an extended passage of continous text entitled "Logic in Language," 1,375 words in length, followed by 27 multiple-choice questions. These questions

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measure literal and inferential recall. In field testing, the LIL test was found to be a valid, internally consistent and reliable instrument.

Pre-questions for treatment group I (T1). Pre-questions for this group were designed by the researcher (researcher-specific). In this way, T1's pre-questions resembled those often provided by teachers to their students in study guides to accompany textbook reading.

Pre-questions for treatment group II (T2). These pre-questions were derived from the strategy fundamental to one of the original textbook study methods, SQ3R, which calls for turning headings and subheadings within the text into who, what, where, when, how, and why questions. Identical questions could have been formed by T2 subjects while reading; therefore, the questions were not researcher-specific. The key advantage of this type of pre-question is that the reader can formulate his or her own with any study reading material.

Procedure

After all 151 students were intially tested, 49 found to have high reading anxiety and low comprehension skills met in the next session. In random fashion each was given an unmarked package. The treatment sequence for T1, T2 and the Controls was identical: STAI-S, LIL passage, STAI-S, LIL comprehension questions. T1 received the LIL passage with interspersed researcher-specific pre-questions. T2 received the LIL passage with heading and sub-heading-converted pre-questions. The Controls received no pre-questions of any kind. The final page in both treatment packages was a three item, Lickert-scaled questionnaire which asked students if they had ever used pre-questions before, to what extent, and, most importantly, to what extent had they used the pre-questions provided them in their reading task for this experiment.

RESULTS

To test the first hypothesis, a series of Pearson correlations were calculated. The correlation coefficient between the RAS and Paragraph Comprehension was $-.57$ ($p < .01$). The indices of association between the State ($-.20$) and Trait ($-.30$) sub-scales and Paragraph Comprehension were significantly lower ($p < .05$) than that between the RAS and Paragraph Comprehension. Although the index between the STAI-T and Paragraph Comprehension was significant ($p < .05$), only nine percent of the variance was shared by the measures, while 33 percent of the variance on Paragraph Comprehension could be predicted by the variance on the RAS.

With respect to the second hypothesis, STAI-S scores indicate that for T1 the researcher-specific pre-questions may have been useful in reducing anxiety within the context of a reading activity. T1 was the only group to experience a significant decrease in situational anxiety (X pre-STAI-S = 45.47; X post-STAI-S = 41.11, $t = 2.27$, $p < .01$).

The next set of data analyses was concerned with testing whether a concomitant improvement in reading comprehension for T1 could be found. The pre-question treatment had no significant effect on comprehension $F(2,46) = 0.18$, $p < .84$.

DISCUSSION

This study supports other research evidence that reading and anxiety are related. The RAS was shown to be superior to specific (State) and general (Trait) measures of anxiety for the prediction of reading comprehension. These data provide evidence that a technically sound measure of "reading anxiety" may be a more useful tool for investigating the interaction of reading and anxiety over other measures of anxiety.

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Although neither T1 nor T2 differed in regard to their familiarity with or previous use of pre-questions, T1 reported using their pre-questions ($X = 3.5$ out of a possible 5, or to a "great extent") to a significantly greater extent ($p < .05$) than T2 ($X = 2.7$). By taking advantage of the researcher-specific pre-questions, T1 apparently felt less "uptight" in the context of the reading task, than T2. Yet, this did not translate into superior comprehension gains for T1. With this evidence it is difficult to defend the use of pre-questions for improving comprehension of anxious readers.

Results from testing hypothesis one and two offer an interesting implication of causality. For this research, serious evidence can be promulgated for considering poor reading ability as a contributing factor to high reading anxiety and not the inverse. High anxiety related to poor reading ability had no effect on reading comprehension tasks, even when adjunct pre-questions were provided and even when anxiety was relatively high. It seems likely that a history of reading failure acts to inflate anxiety related to reading, and, if the relationship is indeed causal, the direction may be from poor reading ability to high anxiety.

RECOMMENDATIONS

The following are some recommendations for teachers and counselors of academically unsuccessful college students interested in using the RAS to improve diagnosis and treatment of reading comprehension difficulties related to excessive anxiety.

1. In academic improvement groups and classes, information about students' reading-anxiety could be combined with reading pre-test scores to form a more complete profile of students' entering skills and needs. Provisions could then be made for offering personal attention to students with high reading anxiety.

2. In diagnosing reading problems on a one-to-one basis, the RAS could be one of the instruments used to probe deeper into possible causes. Understanding the student's reading habits and attitudes could be increased by moving item by item through the Scale with the student discussing each of his/her responses.

3. Skills therapy (Schmelzer & Brozo, 1982) which concentrates on skills development for bringing about changes in affect may be the best approach for poor readers with high anxiety. It is common for anxious readers to generalize the anxiety engendered by failure on a reading-contingent task, as in failure on a history exam, to the history textbook while studying (Wark, 1978). The inability to focus on text due to anxiety often leads to a poor job of studying which in turn can result in future test failure. To break this cycle, emphasis should be placed on methods which actively engage the reader in text processing. In their thorough review of the study reading literature, Anderson and Armbruster (1980) conclude that several techniques are of questionable value. They find promising, however, techniques for representing text diagramatically, for instance networking, mapping and schematizing. Two other strategies which have shown promise for improving comprehension may prove useful with anxious readers: summarizing, according to Day (1980) and multiple-choice item writing as proposed by Duell (1978).

The simple conclusion is that poor readers with high anxiety need more and better reading skill improvement. Teachers eager to use pre-questions either alone or part of traditional study reading systems like SQ3R, or study guide questions of their own design should consider alternative reading aids.

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Reference Notes

1. Refer to Bennett and Wark, 1980, for a comprehensive review of the literature related to the relationship between reading and anxiety, and questioning.

2. For a copy of the RAS plus a full report on its technical qualities see Brozo, W.G. *A study of the effects of pre-questions on reading comprehension and anxiety for first year nursing students.* Unpublished doctoral dissertation, University of South Carolina, 1982.

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